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**COMMENTS ON CALTRANS
PROPOSED EXPANSION OF INTERCITY RAIL IN
CALIFORNIA**

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San Bernardino Associated Governments/County Transportation Commission
May 10, 2000**

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COMMENTS ON CALTRANS PROPOSED EXPANSION OF INTERCITY RAIL IN SOUTHERN CALIFORNIA

By Norman R. King, Executive Director
San Bernardino Associated Governments/County Transportation Commission
April 21, 2000

Prologue: Fact Is Stranger Than Fiction

Over the past twelve years \$2 billion (mostly state money) has been spent on capacity upgrades and expansion of intercity rail in California. During that time the state's annual operating subsidy has increased from near \$0 to \$66 million per year and is still increasing. Ridership has declined from an average of 150 passenger miles per train to less than 100 passenger miles per train. The \$2 billion has yielded about 1100 new roundtrips per day over a year's period. Thus, for each \$1.8 million the state has invested in the system, one new roundtrip per each day of the year has been created. To improve the situation Caltrans is proposing to spend an additional \$3 billion over the next several years. Governor Davis' Traffic Congestion Relief Plan proposes spending over \$700 million on intercity rail expansion.

According to Caltrans projections, the state operating subsidy will increase from \$66 million to \$200 million per year over the next several years with much of the increase a result of the proposed new capital investments. The \$2 billion on capital investment already spent, plus the \$3 billion proposed, is equal to about five years of State Transportation Improvement Program (STIP) funds available for highway and transit improvements at its present level.

What is Intercity Rail?

There are three state supported intercity routes operated by Amtrak in California:

- The San Diegan (San Diego to San Luis Obispo)
- The San Joaquin (Oakland to Bakersfield; Sacramento to Bakersfield)
- The Capitols (San Jose/Oakland to Sacramento). The Capitols became operational in 1991-92

As noted, the state is projecting to spend \$66 million from the Public Transportation Account (PTA) account in operating assistance to intercity rail in 2000-01. Last year all three systems served 2.8 million passengers or 3800 roundtrips per day (see Figure7).

The Governor is proposing \$700 million in increased intercity rail investment in his transportation program. The Governor is also proposing to transfer \$41 million of eligible State Highway Account funds to fill in the PTA deficit.

PROPOSED EXAMINATION OF THE NEW / BATHING / SOUTHERN
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In November 1999, Caltrans issued its Preliminary Draft – Rail Passenger Program Report, to which these comments are directed. Additionally, the Legislative Analyst's Office and the Governor are recommending that Article XIX of the State Constitution be amended to allow state highway gas tax funds to be spent on transit capital.

Issues of Concern

This working paper will review several concerns about the performance and proposal to expand intercity rail as follows:

1. The relationship between expanding intercity rail and reducing funds available for transit and transportation investment (i.e., as intercity rail operating subsidies increase other funds and funding programs such as the Public Transportation Account (PTA), State Highway Account (STA) and the State Transportation Improvement Program (STIP) are negatively affected).
2. The insufficiency of the Caltrans draft plan in addressing the role of intercity rail and the relationship between intercity rail and non-state operated commuter services.
3. The truly incredible decline of intercity rail performance despite significant new investment and the failure of the Draft Plan to analyze this performance.
4. The equity of providing very large subsidies to riders who appear to be among the most affluent citizens.
5. The equity of the "favored nation" status of intercity rail versus other (more efficient) passenger rail providers in the state.

The Relationship Between Increased Intercity Rail Spending and Other Transportation Funds and Accounts

Increased intercity rail capital expenditures and increased operating subsidies for intercity rail cannot be considered in isolation from other state transportation spending programs. Both the California Transportation Commission Annual Report and the Legislative Analyst's Office analysis of the PTA account attribute the increasing PTA deficit largely to the increasing costs of operating subsidies for intercity rail service. State operating subsidies for intercity rail have increased from near \$0 twelve years ago to \$66 million projected for 2000-01 and are projected to increase to over \$200 million per year should the recommended Caltrans capital program be implemented over the next several years.

The Caltrans plan recommends spending \$3.1 billion on intercity rail over the next several years. The Governor's Traffic Congestion Relief Plan proposed spending over \$700 million on intercity rail expansion. The 2000 STIP fund estimate set aside \$55.3 million for expanding service on the three existing corridors and \$19.3 million for new routes.

Also as noted, the Governor is recommending the transfer of \$41 million from the State Highway Account to reduce the PTA deficit. The Governor and the LAO have both recommended changing Article XIX which now prohibits the State Highway Account funds from being used for transit rolling stock. In this context, the proposed transfer from the State Highway Account and the increased flexibility to make such transfers by changing Article XIX of the Constitution should be viewed as a reduction in funds available for future STIP. It is unlikely that the Caltrans State Highway Operation and Protection Program (SHOPP) and administration programs will be reduced, placing the full reduction of any transfers on the STIP.

The LAO is correct in concluding that the administration has not presented justification demonstrating merit in further intercity rail investment, but wrong to support the constitutional amendment, because doing so would facilitate the expansion of intercity rail and drive the PTA into further deficit. The point is, as a practical matter, that increased funding available to the PTA, from whatever source, is most likely to be absorbed solely by intercity rail and not other transit services.

This relationship between funding for intercity rail and other transit services is stated as follows by the Legislative Analyst's Office (Comments on Governor's Proposed budget, Departmental Issues – Transportation):

"To the extent that expenditures for intercity rail increase, funding for other programs such as assistance to transit operators and transportation planning and research activities will be restricted or reduced. Nonetheless, with a substantial account shortfall projected for the future, there is currently no capacity for expanding intercity rail service as planned by the department."

The Inadequacy of Caltrans' Ten Year State Rail Plan

The Caltrans plan presents considerable statistical data. However, the document is not a plan. It lacks analysis of existing performance (see below), presents no projection of anticipated ridership, and establishes no performance criteria by which the Administration or the state legislature can judge whether the program has been or might be a success or failure. The plan is not usable as a planning or financial document and is not a business plan in any sense of the word. The report recommends the expenditure of \$3.1 billion for the expansion of services over several years and presents no justification for this expenditure. There is no analysis of demand for increased intercity service.

In summary, the plan provides no case whatsoever to expand the intercity rail system, or even to keep funding it at its present level. Based on the data provided below, I doubt that presenting such a case is possible. Yet, by the lack of ridership analysis, benefit analysis, ridership projections, there is no basis to even begin this evaluation.

The specific elements of the proposed expansion are as follows:

- New coast train between Los Angeles and San Francisco
- New train between San Francisco and Seaside (Monterey)
- Two additional trains between Los Angeles and San Diego
- One additional train between Bakersfield and Sacramento
- Two additional trains between San Jose and Sacramento

Indicative of the shallowness of this document is the following unsupported statement from the Caltrans report:

"It is important to note that these projections were developed based on projected service needs..."

Upon inquiry it appears that there is no feasibility study or document backing up these projections.

Perhaps the most serious deficiency of the Plan is the lack of discussion regarding the role of the intercity system in relation to other commuter and rail services, both present and future. It is obvious that there has been no attempt to analyze the coordination of services with other systems. Times have changed. In regard to the San Diego, it appears that the Amtrak monopoly on service in this corridor is long over. Amtrak can no longer depend upon piecing together various types of trips (commuter, longer distance, family and leisure). In order to build up a large ridership base, it will have to redefine its market and adjust its service patterns to serve the market.

The plan also does not project capital replacement costs and thus the cost projections do not fully reflect realistic future costs. With the implementation of the Governmental Accounting Standard Board (GASB) requirement, which will require showing depreciation of all assets, this is a surprising and serious omission.

Finally the plan does not address, analyze or discuss what would appear to be key issues of expansion of intercity rail service. Questions such as the following are not raised:

1. What public interest of the state is served by expanding a heavily subsidized intercity rail system which serves less than 10,000 people per day?
2. What air quality benefits are achieved, if any?
3. What is the congestion reduction impact, if any?

4. What income groups are and will be served by the intercity system?
5. What is the role of intercity rail in context of other commuter and rail services?
6. Are there more efficient, cheaper and faster alternatives than intercity service?
7. What effect does intercity rail have on the form of development and efficient land use?

The lack of analysis relative to these questions is surprising given the Caltrans Intercity Rail Program Vision (see Appendix 2) which emphasizes providing transportation alternatives (including for the disabled and low income travelers), highway and airway congestion relief, improving air quality and efficient land use.

There is no question that California's intercity rail infrastructure is at a low level and is unable to provide the level of speed that might make it a more attractive service. Bringing the system up to a higher level is very expensive. The key issue is: Is the scope of reinvestment so high that the state should not undertake it? Or conversely: Will such investment create a competitive mode of transportation at acceptable levels of public subsidy? It must be said that the Caltrans plan does not come close to assisting in an objective conclusion of either question.

The Amazing Decline in Performance in Spite of Vastly Increased Operating Subsidies and Increased Capital Investment

It would seem logical that a proposal to more than double capital spending in the next ten years over the previous ten years would include an analysis of past performance and the productivity of recent investments. There is no such analysis presented in the report.

The following performance discussion uses Caltrans data. It is a sad story.

Capital Costs

Probably the most catastrophic figure concerning the intercity rail program is that each \$1.8 million in capital investment since 1987 has yielded just one new roundtrip per day over the course of a year. This means that it has cost almost \$5,000 in capital investment for each of the 400,000 new round trips (1095 new roundtrips per day) provided in 1999 compared to 1988.

The above figures are based on a \$1.963 billion capital investment in intercity rail since 1987. About \$562 million of this, it can be argued, is of benefit to both intercity rail and other rail operators who operate within the same territory. Assuming that one half of the \$562 million is allocated to intercity rail, the total capital investment would be \$1.7 billion. Using this figure, it has cost \$1.54 million for each new roundtrip produced over the course of a year, or \$4200 for each new roundtrip annually (1999 compared to 1988). Either way, it would appear that the intercity rail investment has been the most

costly transportation investment, in terms of net new trips, of any transportation investment for any mode. Yet implausibly, Caltrans recommends spending an additional \$3 billion in capital investment on intercity rail over the next three years.

It is instructional to compare the recent \$1.9 billion investment in intercity rail to an alternative freeway investment. At \$5 million per lane mile (the estimated cost of SANBAG/Caltrans building the Route 30/210 freeway extension, not including right-of-way) almost 400 lane miles could be constructed (or 200 miles of two-way lane miles). At \$20 million per lane mile almost 100 lane miles (or almost 50 two-way lane miles) could be constructed. I will leave it to others to calculate the total trips and passenger vehicle miles which the freeway investment would accommodate. But no matter what assumptions are made about the use of the freeway alternative, the total will be staggering in comparison to the mere 1100 new roundtrips per day "purchased" by the intercity rail investment of the past twelve years.

Operating Subsidy

When confronted with information about the substantially increased operating subsidy per trip, intercity rail defenders are quick to point out that some of the increased cost is related to Amtrak's allocating increased operating cost to the state. This has occurred, but the critical issue is, regardless of the source of the increased cost, the state taxpayers are paying a much greater share of the subsidy than twelve years ago. Only about 3,700 roundtrips are provided daily by the entire system.

As noted, it is projected that the 2000/2001 total intercity state operational subsidy will be \$66 million a year. However, this figure does not include at least \$10 million of state support, or the projected Amtrak subsidy of \$19.2 million. Thus, the total operating subsidy for intercity rail will be \$95 million per year. Assuming the same ridership figures as in 1999 this comes to \$34 per single trip or \$68 for each roundtrip.

Note that these operating subsidy figures exclude all capital costs. Over the year the subsidy for one roundtrip per day is over \$25,000 (of which the state portion is over \$20,000). Thus, if a mother on welfare took one roundtrip with her two children each day of the year, she would receive a total annual subsidy in reduced rail costs from taxpayers of \$75,000 – at least four times as much as her likely welfare payment. Unlike the mother's welfare subsidy which may be cut off after three years, her entitlement to the train subsidy would continue indefinitely.

Summary of Information Provided in Figures 1-7

Figures 1-7 (See Appendix 3) provide information about several operating and performance characteristics of intercity rail. Figure 1 shows that the total number of intercity trains has increased from 10 to 22 since 1988.

Figure 2a shows the subsidy per passenger mile (also compared to Metrolink). Intercity subsidies per passenger mile vary from \$.17 per mile on the San Joaquin line to about \$.34 on the Capitols.

Figure 3, perhaps the most interesting graph, shows the steep decline in passenger miles per train mile, falling from about 150 in 1988 to less than 100 in 1999. If there is a single statistic that shows the fallacy of "build it and they will ride", Figure 3 is it.

Figure 4 illustrates the dramatic decline in the fare box ratio. In 1989, there was virtually no operating subsidy, whereas now the operating subsidy is about 62%.

Figure 5 shows the state's share of the operating loss, rising from almost nothing in 1989, to \$56 million in 1999 (and \$64 million in 2000).

Figure 7 shows total ridership increasing from 2 million in 1980 to 2.8 million in 1999. Without the new Capitol line ridership has gone from 2 million to 2.25 million. This in spite of almost doubling the number of trains.

A Note On Ridership

It appears that intercity ridership may be up somewhat in recent months. If true, the per trip subsidy portrayed in this report will be somewhat reduced. Some will no doubt use increased ridership to justify the state investment in intercity rail. The ups and downs of intercity rail ridership should not obscure the primary issue:

What is the performance target – in ridership and subsidy – which justifies public expenditure on intercity rail?

At what point is this investment deemed worthwhile and at what point is it a waste of funds?

What are the performance objectives of spending another \$700 million or \$3.1 billion on intercity rail enhancements?

What is the relative performance of the three separate systems and which, if any, merit additional funding (Note that 2/3 of the increased ridership over the past twelve years has been on the new Capitals line)?

Unfortunately, the present Caltrans plan presents no basis upon which these types of questions can be analyzed and addressed. It perpetuates the "it sounds good to me" methodology of intercity rail investment.

Social Equity Issues

The plan is inadequate in that it does not address social equity issues, especially in that transit subsidies are often justified in terms of providing transportation alternatives for persons of lower income. Based on other studies it appears that nationwide Amtrak ridership is composed of persons of higher affluence than users of other transportation modes. A study by Love, Cox, & Moore concluded as follows:

The first of these is the fact that the American Medical Association has been successful in its efforts to secure the passage of the Federal Food, Drug, and Cosmetic Act, which will place the Federal Government in a position to regulate the manufacture, distribution, and sale of drugs and cosmetics.

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THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association is a national organization of physicians and surgeons, founded in 1847. It is the largest and most influential of the medical organizations in the United States. Its primary purpose is to advance the interests of the medical profession and to promote the highest standards of medical practice.

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"The poor are not especially heavy users of Amtrak. Therefore, 75% of Amtrak passengers have incomes above the national average. Travel on Amtrak by persons with income above \$40,000 is the highest of any mode — 3.5 times higher than on buses and nearly 1.5 times higher than on airlines. Nearly 1/3 of Amtrak passengers have household incomes of \$75,000 or more and 20% have incomes of \$100,000 or more."

The Cato Policy Analysis No. 266, "Amtrak at Twenty-Five," Jean Love, Wendell Cox and Stephen Moore, December 19, 1996, provides this table:

Table 1		
Intercity Person Mile Market Share by Income within Transport Mode		
(1990 median household income: \$31,203)		
Transport Mode	Below \$20,000	Above \$40,000
Private vehicle ¹	14.9%	37.5%
Airlines	11.2%	51.4%
Bus	34.9%	20.1%
Amtrak	13.0%	73.2%
¹ Includes automobiles, vans, and pickup trucks. Amtrak data do not include contracted commuter rail service. Calculated from data in Patricia S. Hu and Jennifer Young, 1990 NPTS Databook: Nationwide Personal Transportation Survey (Washington: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, 1993).		

As noted there is no social equity analysis of what income groups and the primary beneficiaries of intercity rail subsidies. Such analysis should be included in the plan. This analysis may or may not show a different income distribution than the above figure.

Equity of Distribution of State Funding For Rail Services

The second equity issue is the distribution of state rail funds. The three intercity rail lines are the only rail lines in the state completely supported by state funds. These lines service only portions of the state and no other rail systems receive 100% funding (not including fares) from the state. Yet many locally operated systems are providing more frequent and less cost service than intercity rail. A more equitable approach would be for the state to provide similar rail subsidies to all parts of the state or provide rail subsidies to local rail operations proportionate to the intercity rail subsidies. The question is, why should some areas receive greater rail subsidies than others just because some areas are served by state run systems and others not?

Conclusion

This report originated from a concern voiced in the California Transportation Commission Report (of the past three years) and the Legislative Analyst's Office Public

The first part of the report is a summary of the work done during the year. It gives a general idea of the work done and the results obtained. The second part is a detailed account of the work done during the year. It gives a detailed account of the work done and the results obtained. The third part is a summary of the work done during the year. It gives a general idea of the work done and the results obtained.

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Table 1	
Summary of the work done during the year	
Item	Value
1. The first part of the report is a summary of the work done during the year.	1.00
2. The second part is a detailed account of the work done during the year.	2.00
3. The third part is a summary of the work done during the year.	3.00
4. The fourth part is a summary of the work done during the year.	4.00
5. The fifth part is a summary of the work done during the year.	5.00
6. The sixth part is a summary of the work done during the year.	6.00
7. The seventh part is a summary of the work done during the year.	7.00
8. The eighth part is a summary of the work done during the year.	8.00
9. The ninth part is a summary of the work done during the year.	9.00
10. The tenth part is a summary of the work done during the year.	10.00

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Transportation Account Analysis pointing out the growing PTA deficit and that intercity rail is the primary reason for such. As PTA funds are reduced other local transit operations throughout the state, including those in San Bernardino County, are at risk of reduced funding.

That concern remains valid. Thus, a conclusion of this report is that if intercity rail operational subsidies continue to increase (as it appears they will) such funding should come from funding sources other than the PTA, the State Highway Account or funds which are presently allocated to non-intercity transit and/or highways.

A second issue took life as the research of this report was pursued – the almost unimaginable poor performance of intercity rail over the past twelve years in context of greatly expanded investment **and** the equally implausible Caltrans recommendation to invest an additional \$3 billion over the next few years.

These statistics and concerns need not be repeated here. However, intercity rail performance raises the issue of the lack of the application of performance standards which distinguish unproductive from productive rail investment and performance. The transportation community appears philosophically divided between those who support rail (at any cost) and those who oppose rail (at any cost). In this context it is all or nothing and there is no ability to distinguish a good rail investment from a bad one. Regional bodies are only too eager to support a new rail system if it traverses their area, especially if it is perceived that someone else will pay all or most of the cost.

The high degree of taxpayer subsidy going to the relatively very few (and most often highly affluent) intercity rail passengers will come as a surprise – I dare say shock – to most people. This is also true of many transportation professionals. This lack of awareness has two implications. First the user has no appreciation for the actual cost of his or her trip; or the public's contribution to it. Secondly, the state administration and the legislature make budgeting decisions with no understanding of what is being purchased and at what cost. This is an ideal environment for symbolic politics of doing the right thing with no regard to cost. Unfortunately decisions such as this have a heavy financial burden, often only realized a few years later, at which time more productive transportation investments are less possible.

The result is that there is no rational basis for discussion at any level -- federal, state or local -- about what type of new rail investment makes sense, if any. I offer no solution; only a commentary on this sad and expensive state we are in.

Postscript: As I have shared preliminary information from this report with others, I have been cautioned about questioning the merits of the intercity rail program and to be aware that doing so may be viewed as politically incorrect. However, I believe that it is critically important that this topic be thoroughly explored and openly discussed. It is clear that it has not been over the past several years.

I will stand corrected, if my information is factually incorrect. I welcome discussion with those who differ with my interpretation of this data.

Chapter 1 Introduction

The purpose of this book is to provide a comprehensive overview of the current state of research in the field of [topic]. It is intended for researchers, students, and practitioners who are interested in understanding the latest findings and trends in this area. The book is organized into several chapters, each focusing on a specific aspect of the field.

The first chapter, "Introduction," provides a general overview of the field and its history. It discusses the major research areas and the key players in the field. The second chapter, "Methodology," discusses the various methods used in research in this field, including qualitative and quantitative approaches.

The third chapter, "Findings," presents the results of the research conducted in this field. It discusses the major findings and the implications of these findings for practice and policy. The fourth chapter, "Conclusion," summarizes the key points of the book and provides a final perspective on the field.

Chapter 2 Literature Review

This chapter provides a detailed review of the literature in the field of [topic]. It discusses the major research findings and the current state of knowledge in this area. The chapter is organized into several sections, each focusing on a specific aspect of the literature.

APPENDIX 1

The first section of the appendix, "Data Collection," describes the methods used to collect the data for the research. It discusses the various sources of data and the procedures used to ensure the reliability and validity of the data. The second section, "Data Analysis," describes the methods used to analyze the data. It discusses the various statistical techniques used and the results of the analysis.

The third section of the appendix, "Conclusions," summarizes the key findings of the research and provides a final perspective on the field. It discusses the major findings and the implications of these findings for practice and policy. The fourth section, "References," lists the sources of the literature reviewed in the book.

Chapter I

Introduction

This "California Rail Passenger Program Report" is an examination of intercity passenger rail transportation in California. The Report reviews the current operations of state-supported intercity rail passenger service and outlines ten-year plans for the period 1999-00 through 2008-09 for capital improvements and service expansions. It is required under state law by Government Code Sections 14036, 14036.1, 14036.2, 14036.4, 14036.7, and Public Utilities Code Section 99317.8.

The last California Rail Passenger Program Report covered the time period from 1993-94 to 2002-03 and was published in December 1993. A report has not been done since that time because Ch 970/95 (AB 116, Speier) deleted the requirement for most state reports through October 1999.

This chapter provides an overview of the Caltrans Rail Program's vision, Amtrak's strategic planning efforts and Caltrans strategic planning. Also, the public process used in developing the Report is discussed.

CALTRANS INTERCITY RAIL PROGRAM VISION

Caltrans developed an Intercity Rail Program Vision in 1998 that summarizes and guides the program's efforts.

1. Provide a Rail Transportation Alternative to Other Travel Modes - rail service provides a safe, efficient and cost effective alternative to auto, bus and air travel. There has never been a passenger fatality on State-supported Amtrak service in California. In some corridors rail travel provides the only alternative travel mode. Rail travel (and other mass transit) often provides the only viable mode of travel for disabled, senior and low-income travelers. Business and leisure travelers may chose rail for cost efficiency, and ease of travel. Rail can provide a cost-effective alternative to all travelers in some short haul air markets characterized by high fares, such as within the San Joaquin Valley.
2. Provide Relief to Highway and Airway Congestion - in many intercity corridors highway demand is near capacity or already exceeded, and it is not financially or environmentally feasible to add capacity. Intercity rail currently provides congestion relief in corridors where capacity has already been exceeded, and rail service can be expanded to provide additional congestion relief. Intercity rail thus provides an alternative to building new highway capacity. Current investment in rail facilities and infrastructure will ensure rail capacity is protected, to be available in the future to provide critical relief to highway and airway systems.

Chapter I

Introduction

The California High-Speed Rail Authority, created by the California High-Speed Rail Act of 2008 (Chapter 1000, Statutes of California, 2008), is the lead agency for the development and construction of the California High-Speed Rail system. The Authority was established to coordinate the efforts of various state and federal agencies, as well as private entities, in the development and construction of the rail system. The Authority's primary responsibility is to develop and implement a comprehensive plan for the rail system, including the selection of routes, the design of the rail system, and the construction of the rail system. The Authority also has the responsibility to manage the construction of the rail system and to ensure that the rail system is completed on time and within budget.

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California High-Speed Rail Authority
California High-Speed Rail Authority
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The California High-Speed Rail Authority was established in 2008, following the passage of the California High-Speed Rail Act. The Authority's primary responsibility is to develop and implement a comprehensive plan for the rail system, including the selection of routes, the design of the rail system, and the construction of the rail system. The Authority also has the responsibility to manage the construction of the rail system and to ensure that the rail system is completed on time and within budget.

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On the air transportation network, it is also environmentally and financially difficult to build additional airport capacity. Intercity rail does provide an alternative to short haul air travel, such as from the Central Valley to the Bay Area and Southern California, relieving congestion at airports by eliminating the need for some short distance flights.

3. Improve Air Quality, Conserve Fuel, and Contribute to Efficient and Environmentally Superior Land Use - contribute to improved air quality through a reduction in vehicle miles traveled and vehicle emissions; reduce fuel consumption, helping to limit dependence on foreign petroleum; help reduce the need for highway construction, which often causes the loss of economically, environmentally, and historically valuable land, and can contribute to inefficient land use patterns.

To achieve the vision for intercity rail in California, service must be frequent and reliable, and serve the major intercity destinations with travel times competitive with the auto. Projects to increase capacity need to be accomplished in order to add frequencies; projects to improve on-time performance will increase reliability; and projects to reduce running time will attract riders and provide an effective service.

AMTRAK'S STRATEGIC BUSINESS PLAN FY 1999-2002 AND PLANNING INITIATIVE

The purpose of the Amtrak "Strategic Business Plan 1999-2000", published in October 1998, is to articulate Amtrak's business vision and define strategies and actions that are necessary to successfully meet the business vision. Amtrak's 1999-02 vision is: "maximizing Amtrak's potential in the marketplace." Towards this vision, the plan has the "dual objectives of creating a more vibrant, modern national system and becoming operationally self sufficient by the end of FY 2002." Amtrak plans "to provide a market-based national system whose economic viability is due to both passenger revenue and the contribution of successful commercial ventures."

The Plan provides context for key corporate strategies and operating plans, and describes their timing and impact. In addition, the Plan reports on anticipated FY 1998 performance results, establishes new operating and financial targets, and details the FY 1999 operating and capital budgets.

While Amtrak has been mandated by the federal government to become operationally self sufficient by the end of FY 2002, the Plan stresses that continued federal capital investment is necessary to achieve operational self-sufficiency. The Taxpayer Relief Act (TRA) of 1997 provides \$2.2 billion towards a \$5 billion need over the five-year 1997-2002 period identified in the FY 1997-2002 Strategic Capital Plan. The Plan assumes that federal capital support will continue in addition to the TRA.

This Plan is focused on the five Key Corporate Strategies and their relationships to eleven Operational Initiatives. The key strategies are:

- Build a market-based network to create economic viability which is critical for the survival of a national network;
- Develop corridor services as the engine of long-term survival;

On the air transportation network, it is also environmentally and financially difficult to build additional airports, runway and taxiway. It is also difficult to build an airport in a rural area. The airport is located in the area of the airport, which is a rural area. The airport is located in the area of the airport, which is a rural area.

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THE AIRPORT'S LOCATION AND THE ENVIRONMENT

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APPENDIX 2

Table 1
California State Supported Train Routes
STATE COSTS
(Dollars in Millions)

YEAR	CAPITOLS	SAN DIEGAN	SAN JOAQUIN	NEW ROUTES (4)	TOTAL PROGRAM
1987-88		\$1.1	\$2.6		\$3.7
1988-89		\$0.8	\$1.9		\$2.7
1989-90		\$1.0	\$3.5		\$4.5
1990-91		\$1.2	\$5.8		\$7.0
1991-92	\$1.6	\$1.0	\$6.5		\$9.1
1992-93	\$6.7	\$1.0	\$10.8		\$18.5
1993-94	\$6.7	\$1.5	\$12.3		\$20.5
1994-95	\$6.0	\$3.6	\$12.7		\$22.3
1995-96 (1)	\$8.8	\$15.5	\$18.5		\$42.8
1996-97 (1)	\$11.8	\$20.2	\$20.0		\$52.0
1997-98 (1)	\$12.8	\$24.6	\$21.1		\$58.5
1998-99 (1,2)	\$16.5	\$25.3	\$23.2		\$65.0
1999-2000 (1,2,3)	\$20.0	\$25.6	\$28.4		\$74.0
2000-01 (1,2)	\$20.5	\$26.1	\$29.0		\$75.6
2001-02 (1,2)	\$22.6	\$26.6	\$34.1	\$10.2	\$93.5
2002-03 (1,2)	\$32.9	\$33.7	\$34.8	\$15.4	\$116.8
2003-04 (1,2)	\$33.6	\$34.4	\$35.5	\$15.7	\$119.2
2004-05 (1,2)	\$34.2	\$40.4	\$46.4	\$20.8	\$141.8
2005-06 (1,2)	\$35.0	\$41.2	\$47.4	\$25.8	\$149.4
2006-07 (1,2)	\$38.7	\$47.0	\$53.4	\$37.3	\$176.4
2007-08 (1,2)	\$39.5	\$48.0	\$54.6	\$38.0	\$180.1
2008-09 (1,2)	\$43.9	\$56.7	\$61.6	\$39.1	\$201.3

(1) Figures from 1995-96 forward include rail operating cost plus admin and marketing costs

(2) State support (admin & marketing) costs are based on 1997-98 figures

(3) Figures for 1999-2000 are "budget" figures

(4) See Table 2

Table 1
 Estimated Annualized Total Costs
 1990-1999
 (in millions of dollars)

Year	1990-1999	1990-1999	1990-1999	1990-1999
1990	1.0	1.0	1.0	1.0
1991	1.0	1.0	1.0	1.0
1992	1.0	1.0	1.0	1.0
1993	1.0	1.0	1.0	1.0
1994	1.0	1.0	1.0	1.0
1995	1.0	1.0	1.0	1.0
1996	1.0	1.0	1.0	1.0
1997	1.0	1.0	1.0	1.0
1998	1.0	1.0	1.0	1.0
1999	1.0	1.0	1.0	1.0
2000	1.0	1.0	1.0	1.0
2001	1.0	1.0	1.0	1.0
2002	1.0	1.0	1.0	1.0
2003	1.0	1.0	1.0	1.0
2004	1.0	1.0	1.0	1.0
2005	1.0	1.0	1.0	1.0
2006	1.0	1.0	1.0	1.0
2007	1.0	1.0	1.0	1.0
2008	1.0	1.0	1.0	1.0
2009	1.0	1.0	1.0	1.0
2010	1.0	1.0	1.0	1.0
2011	1.0	1.0	1.0	1.0
2012	1.0	1.0	1.0	1.0
2013	1.0	1.0	1.0	1.0
2014	1.0	1.0	1.0	1.0
2015	1.0	1.0	1.0	1.0
2016	1.0	1.0	1.0	1.0
2017	1.0	1.0	1.0	1.0
2018	1.0	1.0	1.0	1.0
2019	1.0	1.0	1.0	1.0
2020	1.0	1.0	1.0	1.0
2021	1.0	1.0	1.0	1.0
2022	1.0	1.0	1.0	1.0
2023	1.0	1.0	1.0	1.0
2024	1.0	1.0	1.0	1.0
2025	1.0	1.0	1.0	1.0
2026	1.0	1.0	1.0	1.0
2027	1.0	1.0	1.0	1.0
2028	1.0	1.0	1.0	1.0
2029	1.0	1.0	1.0	1.0
2030	1.0	1.0	1.0	1.0
2031	1.0	1.0	1.0	1.0
2032	1.0	1.0	1.0	1.0
2033	1.0	1.0	1.0	1.0
2034	1.0	1.0	1.0	1.0
2035	1.0	1.0	1.0	1.0
2036	1.0	1.0	1.0	1.0
2037	1.0	1.0	1.0	1.0
2038	1.0	1.0	1.0	1.0
2039	1.0	1.0	1.0	1.0
2040	1.0	1.0	1.0	1.0
2041	1.0	1.0	1.0	1.0
2042	1.0	1.0	1.0	1.0
2043	1.0	1.0	1.0	1.0
2044	1.0	1.0	1.0	1.0
2045	1.0	1.0	1.0	1.0
2046	1.0	1.0	1.0	1.0
2047	1.0	1.0	1.0	1.0
2048	1.0	1.0	1.0	1.0
2049	1.0	1.0	1.0	1.0
2050	1.0	1.0	1.0	1.0
2051	1.0	1.0	1.0	1.0
2052	1.0	1.0	1.0	1.0
2053	1.0	1.0	1.0	1.0
2054	1.0	1.0	1.0	1.0
2055	1.0	1.0	1.0	1.0
2056	1.0	1.0	1.0	1.0
2057	1.0	1.0	1.0	1.0
2058	1.0	1.0	1.0	1.0
2059	1.0	1.0	1.0	1.0
2060	1.0	1.0	1.0	1.0
2061	1.0	1.0	1.0	1.0
2062	1.0	1.0	1.0	1.0
2063	1.0	1.0	1.0	1.0
2064	1.0	1.0	1.0	1.0
2065	1.0	1.0	1.0	1.0
2066	1.0	1.0	1.0	1.0
2067	1.0	1.0	1.0	1.0
2068	1.0	1.0	1.0	1.0
2069	1.0	1.0	1.0	1.0
2070	1.0	1.0	1.0	1.0
2071	1.0	1.0	1.0	1.0
2072	1.0	1.0	1.0	1.0
2073	1.0	1.0	1.0	1.0
2074	1.0	1.0	1.0	1.0
2075	1.0	1.0	1.0	1.0
2076	1.0	1.0	1.0	1.0
2077	1.0	1.0	1.0	1.0
2078	1.0	1.0	1.0	1.0
2079	1.0	1.0	1.0	1.0
2080	1.0	1.0	1.0	1.0
2081	1.0	1.0	1.0	1.0
2082	1.0	1.0	1.0	1.0
2083	1.0	1.0	1.0	1.0
2084	1.0	1.0	1.0	1.0
2085	1.0	1.0	1.0	1.0
2086	1.0	1.0	1.0	1.0
2087	1.0	1.0	1.0	1.0
2088	1.0	1.0	1.0	1.0
2089	1.0	1.0	1.0	1.0
2090	1.0	1.0	1.0	1.0
2091	1.0	1.0	1.0	1.0
2092	1.0	1.0	1.0	1.0
2093	1.0	1.0	1.0	1.0
2094	1.0	1.0	1.0	1.0
2095	1.0	1.0	1.0	1.0
2096	1.0	1.0	1.0	1.0
2097	1.0	1.0	1.0	1.0
2098	1.0	1.0	1.0	1.0
2099	1.0	1.0	1.0	1.0
2100	1.0	1.0	1.0	1.0

(1) Figures from 1990-1999 are based on the 1990-1999 survey data.
 (2) Data reported for 2000-2009 are based on the 2000-2009 survey data.
 (3) Figures for 2010-2019 are based on the 2010-2019 survey data.
 (4) See Table 1.

Table 2
California State Supported Train Routes
STATE COSTS FOR NEW ROUTES
(Dollars in Millions)

YEAR	COAST/MONTEREY			RENO			COACHELLA			REDDING		
	Oper	Admin(5)	Mktg	Oper	Admin(7)	Mktg	Oper	Admin(8)	Mktg	Oper	Admin(9)	Mktg
Oversight by:	None (5)			<i>Capitols Route</i>			<i>San Diegan Route</i>			<i>San Joaquin Route</i>		
2000-01	\$8.2	\$0.9	\$1.1	\$	\$	\$	\$	\$	\$	\$	\$	\$
2002-03	\$13.4	\$0.9	\$1.1	\$	\$	\$	\$	\$	\$	\$	\$	\$
2003-04	\$13.7	\$0.9	\$1.1	\$	\$	\$	\$	\$	\$	\$	\$	\$
2004-05	\$9.4	\$0.9	\$1.1	\$3.3	\$0.0	\$1.1	\$3.0	\$0.9	\$1.1	\$	\$	\$
2005-06	\$9.7	\$0.9	\$1.1	\$3.3	\$0.0	\$1.1	\$3.0	\$0.9	\$1.1	\$3.6	\$0.0	\$1.1
2006-07	\$17.8	\$0.9	\$1.1	\$3.4	\$0.0	\$1.1	\$6.2	\$0.9	\$1.1	\$3.7	\$0.0	\$1.1
2007-08	\$18.2	\$0.9	\$1.1	\$3.5	\$0.0	\$1.1	\$6.3	\$0.9	\$1.1	\$3.8	\$0.0	\$1.1
2008-09	\$18.9	\$0.9	\$1.1	\$3.6	\$0.0	\$1.1	\$6.5	\$0.9	\$1.1	\$3.9	\$0.0	\$1.1

- (5) In estimating allocations for administration and marketing costs, the closest comparison appeared to be the *Capitols* service, so identical figures were used for these costs.
- (6) It is assumed that the *Coast/Monterey* service will yield a new Caltrans product line.
- (7) The limited service to Reno is not anticipated to require additional administrative cost, however, marketing cost similar to that for the *Capitals* route have been assigned.
- (8) Due to the significant destination differentiation for the *Coachella* route, additional administration and marketing will be required. Administration and marketing costs applicable to the *Capitals* route have been applied here.
- (9) The *Redding* service is not anticipated to require additional administrative support costs, however, a separate \$1.1M marketing budget is assumed here.

Table 1
Estimated Water Requirements (Cubic Feet)
State of New Mexico
October to September

Year	Irrigation		Domestic		Industrial		Total	
	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual
1900	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1901	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1902	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1903	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1904	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1905	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1906	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1907	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1908	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1909	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1910	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1911	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1912	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1913	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1914	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1915	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1916	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1917	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1918	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1919	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000
1920	1,000,000,000	1,000,000,000	100,000,000	100,000,000	100,000,000	100,000,000	1,200,000,000	1,200,000,000

(1) The figures shown in this table are based on the assumption that the water requirements for irrigation are based on the average annual rainfall for the State of New Mexico, which is 15.5 inches. The actual water requirements for irrigation are based on the actual rainfall for each year.

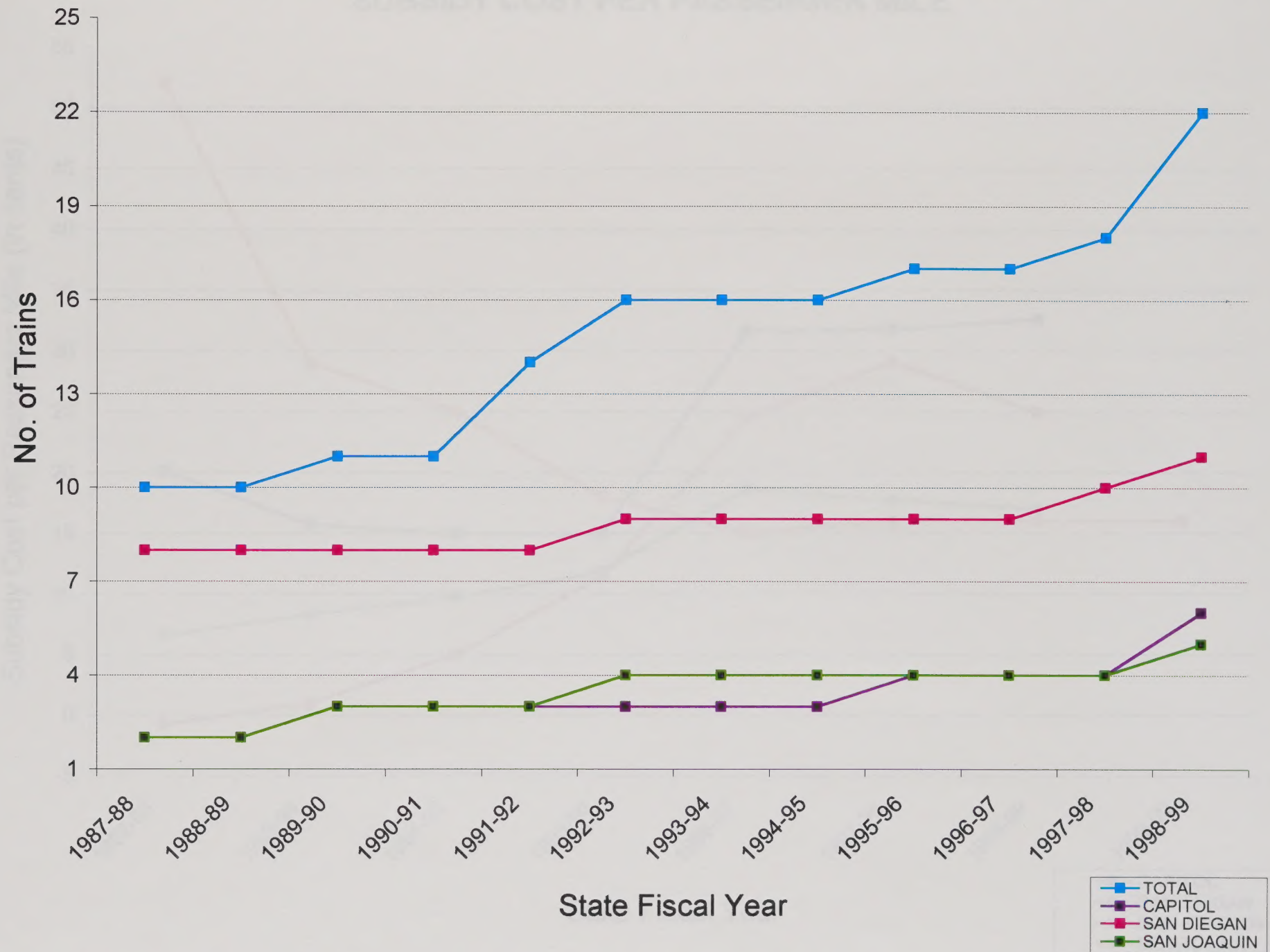
(2) The figures shown in this table are based on the assumption that the water requirements for domestic use are based on the average annual population of the State of New Mexico, which is 1,000,000. The actual water requirements for domestic use are based on the actual population for each year.

(3) The figures shown in this table are based on the assumption that the water requirements for industrial use are based on the average annual industrial production of the State of New Mexico, which is \$100,000,000. The actual water requirements for industrial use are based on the actual industrial production for each year.

(4) The figures shown in this table are based on the assumption that the water requirements for total use are based on the average annual total water requirements of the State of New Mexico, which is 1,200,000,000 cubic feet. The actual water requirements for total use are based on the actual total water requirements for each year.

APPENDIX 3

Figure 1
California State Supported Train Routes
NUMBER OF TRAINS OPERATING EACH YEAR BY ROUTE



100%
 50%
 0%

100%
 50%
 0%

100%
 50%
 0%



NUMBER OF TRIALS OBSERVED EACH YEAR BY MONTH
 SEASONAL VARIATION IN THE NUMBER OF TRIALS OBSERVED EACH YEAR BY MONTH

Figure 2A

California State Supported Train Routes SUBSIDY COST PER PASSENGER MILE



AS AIRCRAFT DESIGNERS CONSIDER THE PROBLEM OF PASSENGER COMFORT

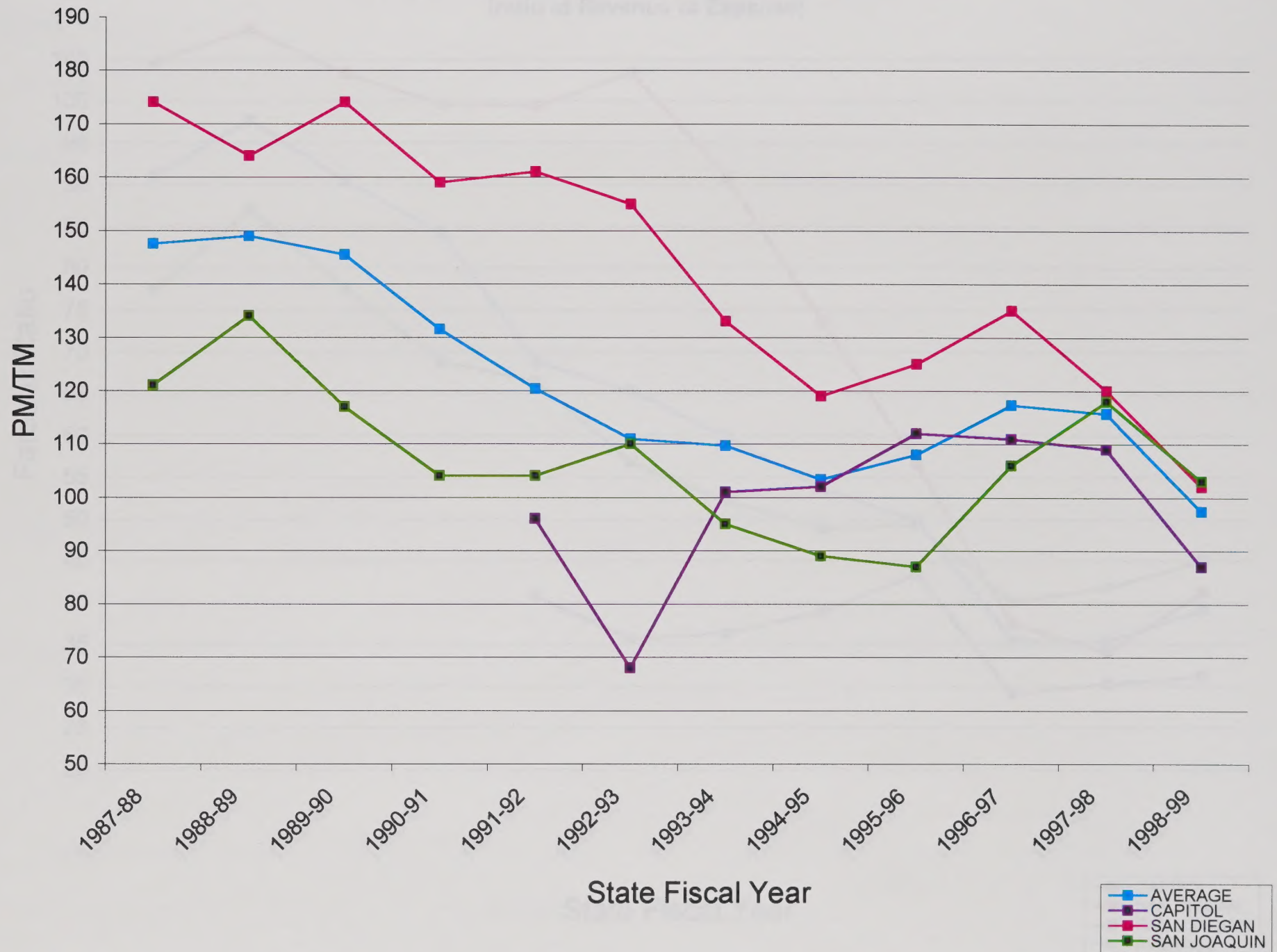
THE
 AIRCRAFT
 DESIGNERS
 CONSIDER
 THE
 PROBLEM
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THE
 AIRCRAFT
 DESIGNERS
 CONSIDER
 THE
 PROBLEM
 OF
 PASSENGER
 COMFORT



Figure 3
California State Supported Train Routes
PASSENGER MILE PER TRAIN MILE CALCULATIONS



100
 80
 60
 40
 20
 0

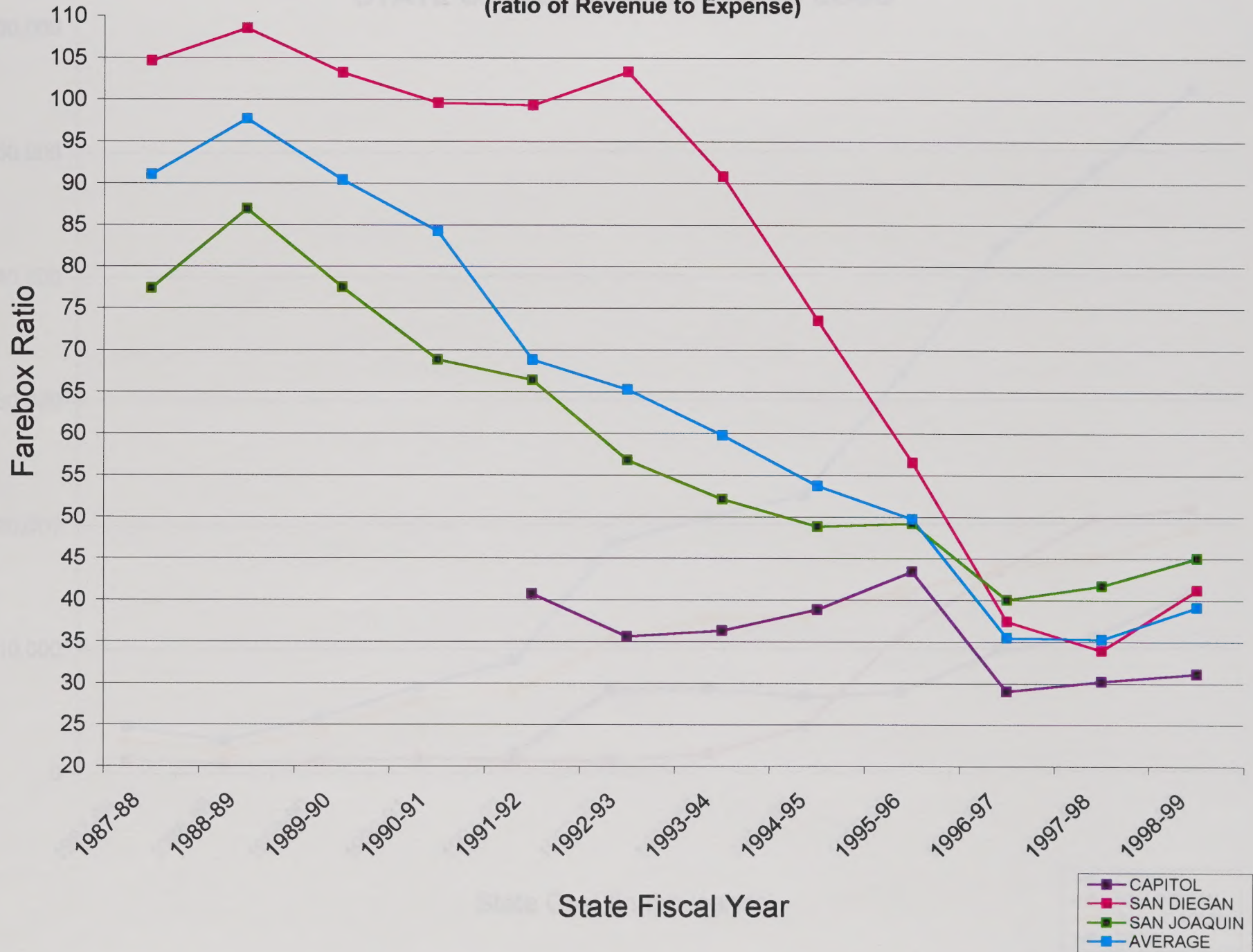
100
 80
 60
 40
 20
 0

100
 80
 60
 40
 20
 0



100
 80
 60
 40
 20
 0

Figure 4
California State Supported Train Routes
ROUTE FAREBOX RATIO
 (ratio of Revenue to Expense)

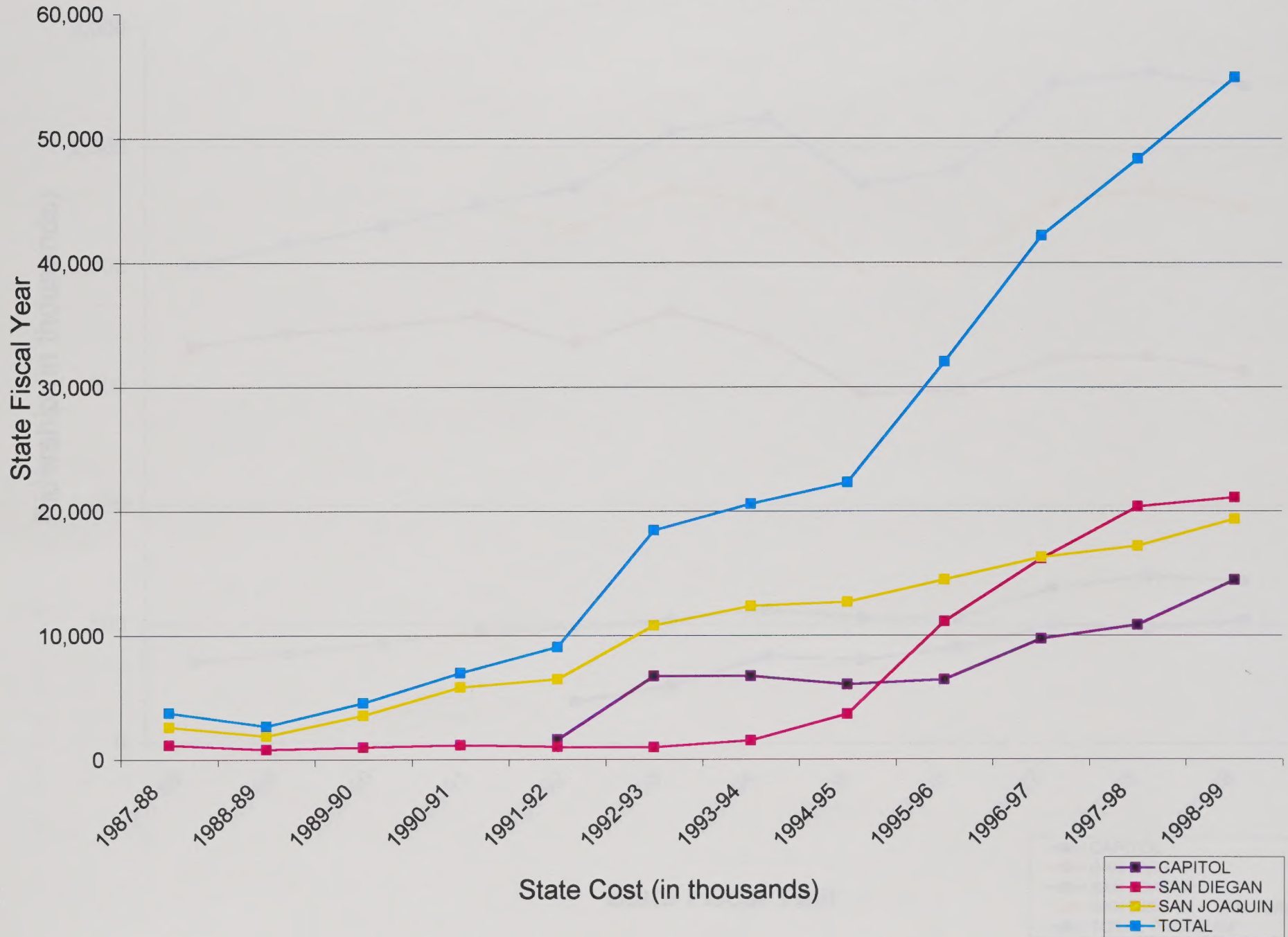


Effect of temperature on the survival of *Salmonella typhimurium* in water

(percentage of survival to 100%)



Figure 5
California State Supported Train Routes
STATE SHARE OF OPERATING LOSS

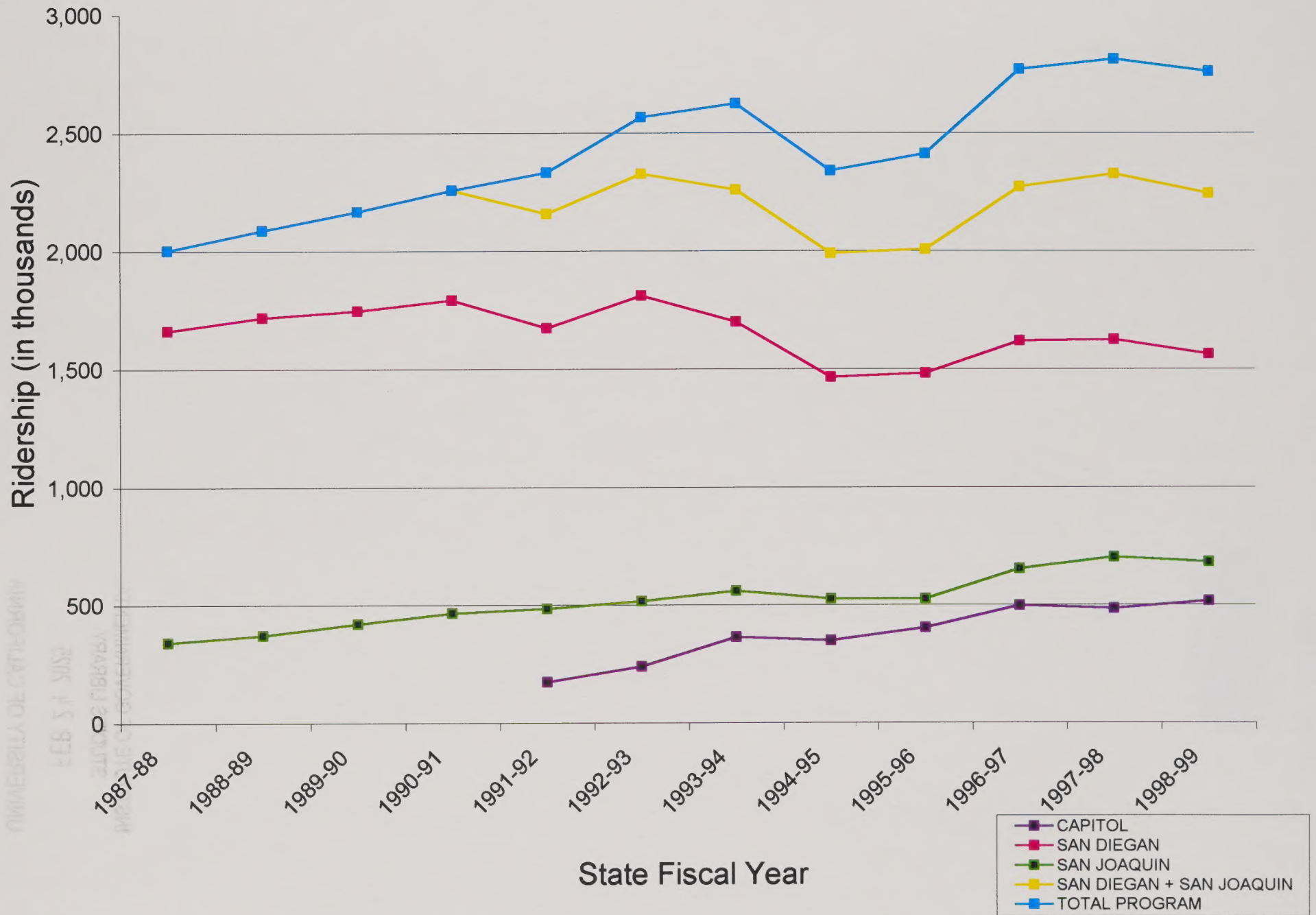


2000-2005 (in thousands)



STATE SHARE OF OPERATING LOSS
2000-2005

Figure 7
California State Supported Train Routes
ANNUAL RIDERSHIP



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